positive electrode 454 generally can have any shape, e.g., roughly spherical nanoparticles or elongated nanoparticles. In addition to metal vanadium oxide particles, positive electrode 454 can include other electroactive nanoparticles such as TiO_2 nanoparticles, vanadium oxide nanoparticles and manganese oxide nanoparticles. The production of TiO_2 nanoparticles has been described, see U.S. Patent Ser. No. 4,705,762, incorporated herein by reference. Vanadium oxide nanoparticles are know to exhibit surprisingly high energy densities, as described in copending and commonly assigned U.S. Patent application serial no. 08/897,776 now U.S. Patent 5,952,125, entitled "Batteries With Electroactive Nanoparticles," incorporated herein by reference. The production of manganese oxide nanoparticles is described in copending and commonly assigned U.S. Patent Application serial no. 09/188,770 to Kumar et al. filed on November 9, 1998, now U.S. Patent 6,506,493, entitled "Metal Oxide Particles," incorporated herein by reference.

REMARKS

Claims 1-3, 6-18 and 22-26 are pending. The specification has been amended to update references to copending application that have subsequently issued. No new matter is introduced by the amendments.

Claim 1-3, 6-10, 17, and 22-26 stand rejected. Claims 11-16 and 18 are objected to for depending on rejected base claims. Applicants respectfully request reconsideration of the rejection based on the following comments.

Rejection Of Claims 1-3, 6-9, 17 and 22-26

The Examiner rejected claims 1-3, 6-9, 17 and 22-26 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,549,880 to Koksbang et al. (the Koksbang '880 patent). Applicants hereby incorporate by reference their discussion relating to this rejection from the Response of November 8, 2002. Applicants' present discussion focuses on the Examiner's response to Applicants' previous arguments. In particular, the Examiner indicated that the present claims are not directed to methods such that Applicants' argument were not on point.

With all due respect, Applicants maintain that the Examiner has not presented a case of prima facie anticipation since the Koksbang '880 patent does not disclose all of the elements of Applicants' claimed invention. Applicants respectfully request reconsideration of the rejection based on the following comments.

"To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either explicitly or inherently." Atlas Powder Co. v. IRECO Inc., 51 USPQ2d 1943, 1945 (Fed. Cir. 1999)(citing In re Schreiber, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997)). This principle is well established. The Koksbang '880 patent does not explicitly or inherently disclose a collection of metal vanadium oxide particles with an average particle size of less than about one micron.

It is clear that the Koksbang '880 patent is referring to a distribution of particle sizes "on the order of 0.1 to 5 microns, and typically less than 10 microns." For example, the language is used in the examples of the Koksbang '880 patent at column 5, lines 1-6 in reference to one set of synthesis conditions. Performance of the particle synthesis under one set of particular conditions would not be expected to lead to a range of average particle sizes but instead to a range of sizes with a particular average. Since the Koksbang '880 patent is referring to a distribution of particle sizes, the average particle size is not less than about 1 micron. In response, the Examiner has asserted incorrectly that the Koksbang '880 patent teaches "the same method" as Applicants to produce their particles. To rebut the Examiner's assertions, Applicants have explicitly explained how the methods are distinct. The Koksbang patent simply does not explicitly or inherently disclose Applicants' claimed invention.

In a phone interview on May 23, 2002, the Examiner indicated that Applicants should address the possibility of forming the claimed collection of particles from the collection of particles disclosed in the Koksbang '880 patent. See Preliminary Amendment of June 20, 2002. Applicants have done this even though this issue is not relevant to anticipation. With all due respect, the Examiner has confused the issue by connecting Applicants' rebuttal arguments relating to the non-obviousness of Applicants' claimed particle collection with features of

Applicants' claimed invention. Regardless, the Examiner has not asserted a prima facie case of obviousness such that **any processing issues are not relevant to any pending rejections.** In particular, the pending rejections relate to anticipation such that issues relating to obviousness are a distraction with respect to advancing prosecution.

With respect to the issues relating to dependent claims 6-9 and 23, Applicants maintain their arguments from the Response of November 8, 2002 and do not repeat these here.

The Examiner has failed to establish prima facie anticipation of the claims. Applicants respectfully request withdrawal of the rejection of claims 1-3, 6-9, 17 and 22-26 under 35 U.S.C. § 102(b) as being anticipated by the Koksbang '880 patent.

Rejection Of Claim 10

The Examiner rejected claim 10 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,512,214 to Koksbang (the Koksbang '214 patent). In particular, the Examiner asserts that the Kokbang '214 patent discloses vanadium oxide particles with an average particle size less than a micron at column 5, lines 1-6. There must be some misunderstanding since the Koksbang '214 patent clearly does not disclose vanadium oxide particles with an average particle size less than one micron. Since the Koksbang '214 patent does not teach or suggest all of the features of Applicants' claimed invention, the Kokbang patent does not prima facie anticipate Applicants' claimed invention.

As noted above, a reference must explicitly or inherently disclose all features of a claimed invention to anticipate a claim. The Koksbang '214 patent simply does not disclose vanadium oxide particles with an average particle size less than about one micron. The Examiner has failed to point to any language in the Koksbang '214 patent that supports the rejection. Therefore, the Koksbang '214 patent does not prima facie anticipate Applicants' claim 10. Since the Koksbang '214 patent does not anticipate Applicants' claimed invention, Applicants respectfully request withdrawal of the rejection of claim 10 under 35 U.S.C. § 102(b) as being anticipated by the Koksbang '214 patent.

CONCLUSIONS

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,

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Shari Thorndike

March 27, 2003
Date

Shari R. Thorndike

ATTACHMENT
REDLINED AMENDMENT

Specification As Amended

At page 9, lines 1-16, the paragraph has been amended as follows.

If the aerosol precursors are formed with a solvent present, the solvent is rapidly evaporated by the laser beam in the reaction chamber such that a gas phase reaction can take place. Thus, the fundamental features of the laser pyrolysis reaction are unchanged. However, the reaction conditions are affected by the presence of the aerosol. Suitable conditions for the formation of manganese oxide nanoparticles by laser pyrolysis with aerosol precursors is described in copending and commonly assigned U.S. Patent application serial number 09/188,770, filed on November 9, 1998, now U.S. Patent 6,506,493, entitled "Metal Oxide Particles," incorporated herein by reference. Suitable vanadium precursors for aerosol production include, for example, vanadium trichloride (VCl_3), vanadyl chloride (VOCl), and vanadyl dichloride ($VOCl_2$), which is soluble in absolute alcohol.

At page 22, lines 7-30, the paragraph has been amended as follows. Note that this paragraph was previously amended in the Amendment of October 3, 2001.

The improved apparatus includes a collection system to remove the nanoparticles from the molecular stream. The collection system can be designed to collect a large quantity of particles without terminating production or, preferably, to run in continuous production by switching between different particle collectors within the collection system. The collection system can include curved components within the flow path similar to curved portion of the collection system shown in Fig. 1. A particular preferred collection system for particle production systems operating in a continuous collection mode is described in copending and commonly assigned U.S. Patent application serial number 09/107,729, now U.S. Patent 6,270,732 to Gardner et al., entitled

"Particle Collection Apparatus And Associated Methods," incorporated herein by reference. A batch collection system for use with the improved reaction system is described in copending and commonly assigned U.S. Patent application serial number 09/188,770, filed on November 9, 1998, now U.S. Patent 6,506,493, entitled "Metal Oxide Particles," incorporated herein by reference. The configuration of the reactant injection components and the collection system can be reversed such that the particles are collected at the top of the apparatus.

At page 35, line 16, the paragraph has been amended as follows. This paragraph was previously amended in the Preliminary Amendment filed with the application.

Positive electrode 454 includes electroactive nanoparticles such as metal vanadium oxide nanoparticles held together with a binder such as a polymeric binder. Nanoparticles for use in positive electrode 454 generally can have any shape, e.g., roughly spherical nanoparticles or elongated nanoparticles. In addition to metal vanadium oxide particles, positive electrode 454 can include other electroactive nanoparticles such as TiO_2 nanoparticles, vanadium oxide nanoparticles and manganese oxide nanoparticles. The production of TiO_2 nanoparticles has been described, see U.S. Patent Ser. No. 4,705,762, incorporated herein by reference. Vanadium oxide nanoparticles are know to exhibit surprisingly high energy densities, as described in copending and commonly assigned U.S. Patent application serial no. 08/897,776 now U.S. Patent 5,952,125, entitled "Batteries With Electroactive Nanoparticles," incorporated herein by reference. The production of manganese oxide nanoparticles is described in copending and commonly assigned U.S. Patent Application serial no. 09/188,770 to Kumar et al. filed on November 9, 1998, now U.S. Patent 6,506,493, entitled "Metal Oxide Particles," incorporated herein by reference.